

$$\textcircled{15} f(x) = x^4 - 81$$

$$x^4 - 81 = 0$$

$$+81 \quad -81$$

$$\sqrt[4]{x^4} = \sqrt[4]{81}$$

$$x = \pm 3$$

$$\textcircled{17} f(x) = x^2 - x + 56$$

$$(x - 8)(x + 7) = 0$$

$$x = 8, -7$$

$$\textcircled{16} f(y) = y^4 - 625$$

$$y^4 - 625 = 0$$

$$\sqrt[4]{y^4} = \sqrt[4]{625}$$

$$y = \pm 5$$

(23)

$$x^4 + 10x^2 + 9$$

$$x^2 + 10x + 9$$

$$(x+9)(x+1)$$

$$\rightarrow (x^2+9)(x^2+1)$$

$$x^2+9=0$$

$$x = \pm 3i$$

$$x^2+1=0$$

$$x = \pm i$$

$$(19) f(x) = x^3 - 3x^2 - 15x + 125$$

$$\begin{array}{r|rrrr} 5 & 1 & -3 & -15 & 125 \\ & & 5 & 10 & -25 \\ \hline & 1 & 2 & -5 & \end{array}$$

$$\begin{array}{r|rrrr} -5 & 1 & -3 & -15 & 125 \\ & & -5 & 40 & -125 \\ \hline & 1 & -8 & 25 & 0 \end{array}$$

$$(x+5)(x^2-8x+25)=0$$

$$\frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(25)}}{2(1)}$$

$$\frac{8 \pm \sqrt{64-100}}{2} = \frac{8 \pm \sqrt{-36}}{2} = \frac{8 \pm 6i}{2}$$

$$(x+5)(x-(4+3i))(x-(4-3i)) \quad \boxed{4 \pm 3i}$$

Test - Thursday

- Find x-int. & vertex of quadratics
 $x = \frac{-b}{2a}$
- Complete the square
- Sketch a graph $y = \frac{1}{3}(x-2)^2(x+3)$
- imaginary numbers \rightarrow arithmetic
- Finding zeros \rightarrow synthetic \div , rational zero test, lower/upper bounds
- Long division of polynomials
- Application problem

p. 169 #6, 35-42(2), 47, 56, 63, 72, 79, 91-100(2), 101-104(2)

Sketch 87 w/o calculator

$$y = 2x^2 + 4x - 6$$

$$x = \frac{-b}{2a}$$

$$\frac{2x^2}{2} + \frac{4x}{2} - \frac{6}{2} = \frac{0}{2}$$

$$x^2 + 2x - 3 = 0$$

$$x^2 + 2x = 3$$

$$x^2 + 2x + 1 = 3 + 1$$

$$(x+1)^2 = 4$$

$$(x+1)^2 - 4 = 0$$

$$2(x+1)^2 - 8 = 0$$

$$\frac{1}{2}(2) = 1, 1^2 = 1, \text{ add it}$$

$$y = a(x-h)^2 + k$$

vertex $(-1, -8)$